

## CLAIMS

What is claimed is:

1. A router using source routing for multiple hops of a route through a network, each of the multiple hops being encoded at a source by port descriptors in a header of a packet, the router comprising:

input router storage which receives port descriptors from a routing header of a packet, the port descriptors source coding each hop of the route through the network;

10 a port descriptor extractor which extracts a next hop port descriptor from the routing header; and

a header updating circuit which generates a new header representing a remaining route, the header updating circuit inserting an implied exit field in the new header.

15 2. A method of routing multiple hops of a route through a network, each of the multiple hops being encoded at a source by port descriptors in a header of a packet, the method comprising, at a router:

storing port descriptors from a routing header of a packet, the port descriptors source coding each hop of the route through the network;

20 extracting a next hop port descriptor from the routing header; and  
inserting an implied exit field in generating a new routing header representing a remaining route.